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the curriculum, or that it should be required to be taught by unwilling teachers, but it urged that the training college curriculum should be adapted to include the biological and physiological knowledge on which a eugenic ideal could be based, and that the subject should be approached from the evolutionary standpoint. Mr. Trevelyan said that the board, while unable to make sex hygiene or eugenics a compulsory subject of instruction in elementary schools or training colleges, recognized the importance of the matter, and had no wish to discourage experiments in teaching on those lines.

It is stated in the *Electrical World* that several pieces of electrical apparatus constructed by Volta during his early electrical experiments were discovered recently by Sir Henry Norman, a member of the British parliament, in a little curiosity shop in an out-of-the-way section of a small Italian town. The uncle of the shopkeeper was Volta's cook and body servant for thirty years. On his death he left much of his experimental apparatus with this servant, and it has since passed down from generation to generation. The collection comprises a cupboard full of old apparatus, a number of books, portraits, papers and letters and some personal and domestic articles. Sir Henry Norman suggests that the collection be purchased and presented to the Royal Institution to be placed with Faraday's original apparatus.

UNIVERSITY AND EDUCATIONAL NEWS

THE will of the late Isaac M. Jackson, of Plymouth, Mass., among other public bequests, gives \$15,000 to Yale University.

It is reported that the medical department of Willamette University, Salem, has been merged with the medical department of the University of Oregon, located at Portland, the merger to take effect at the conclusion of the present college year. There will hereafter be but one medical college in the state. A biennial appropriation of \$45,000 has been made by the Oregon legislature for the medical department of the state university.

THE development of a health instruction bureau in connection with the Extension Division of the University of Wisconsin has been authorized by the regents. According to authorities in medicine, hygiene and vital statistics, the average duration of human life could be raised fifteen years if all the present available medical and hygienic knowledge were intelligently applied. The new health bureau will undertake to carry out to the people of Wisconsin this knowledge. Bulletins will be published on preventable diseases, infant mortality, hygiene and similar subjects. Public lectures, health institutes, etc., will also be given.

PROFESSOR ALLYN A. YOUNG, of Washington University, St. Louis, has been appointed professor of economics at Cornell University, to succeed Professor E. W. Kemmerer, now of Princeton University.

DISCUSSION AND CORRESPONDENCE

A METHOD FOR MAKING PARAFFIN BOTTLES FOR HYDROFLUORIC ACID

THE usual method of making containers for hydrofluoric acid for use in softening hard woody tissue is, either to use the large wax bottles in which the acid comes from the dealer; or ordinary glass bottles which have previously been coated on the inside with paraffin. Owing to the size of the bottles the first of these methods is inconvenient, unless a large number of blocks of wood are to be softened at one time, and the second method is often unsatisfactory, as the paraffin sometimes cracks, allowing the acid to eat through the glass. These difficulties led me to devise the following bottle which is easy to make and is more satisfactory in its operation than the above.

Ordinary cardboard mailing tubes, of the proper diameter, should be cut into lengths of about ten centimeters each. These should be thoroughly infiltrated by placing them in a vessel of melted paraffin and leaving them in the oven for a short time. After the cardboard has become infiltrated the tubes should be removed, and when the paraffin has hard-

ened, they should be set on end on a cool moist surface and enough melted paraffin poured in to form a bottom four or five millimeters in thickness in each of the bottles. After cooling, each bottle should be filled with melted paraffin and emptied, a process that should be repeated every few minutes until a rather thick coating has formed on the inside. The exterior should be treated in a similar way by dipping the bottles into melted paraffin.

Rubber stoppers can be fitted to these bottles by warming the neck of each and by pressing a stopper, of the proper size, into the opening before the paraffin cools. If rubber stoppers are not available, ordinary bottle-corks, which have been coated with paraffin, can be used with quite as good results.

ALBAN STEWART

UNIVERSITY OF WISCONSIN

NOTES ON CUBAN FRESH-WATER FISHES

WHILE collecting fossils in the province of Santa Clara, Cuba, in 1911, my work took me to Baños de Ciego, Montero, 30 miles north of Cienfuegos. Here occur three hot springs having a temperature, respectively, of 93, 96 and 99 degrees Fahrenheit. These springs are grouped close together, not more than 20 yards apart and about 200 yards from the Analla River into which they drain. The springs of 93 and 96 degrees temperature are walled in and the latter is surrounded by a hotel. The one of 99 degrees temperature is of largest volume and has direct communication with the river. In this spring as well as in the drainage water of the other springs and the cold water of the river, I found a great many fishes, mostly viviparous.

The following species have been identified from the spring:

- Symbranchus marmoratus* Bloch.
- Gambusia puncticulata* Poey.
- Glaridichthys falcatus* Eigenmann.
- Girardinus metallicus* Poey.
- Pacilia vittata* Guichenot.
- Heros tetraanthus* (Cuv. & Val.).

Of these the eel-like *Symbranchus marmoratus* was found only in the hot spring. The

other species, so far as I was able to observe, were common to both the cold water of the river and that of the hot springs, becoming acclimated by degrees, until they were finally able to live in the hottest water, 37° Centigrade, approximately that of blood temperature.

I was curious to know if it were possible for these fishes to live equally well in the hot spring water of 99 degrees temperature and the river water of 60 degrees temperature without first going through a process of acclimation, so conducted a number of experiments. It was quite evident that fishes could gradually come from the cold water into that of the hottest temperature, so I took a number from the hot spring, carefully catching them in a net so as to avoid injury and placed some in river water and others in water from the other springs. Those placed in water of 93 degrees temperature seemed to live in it as well as in that of 99 degrees, but those placed in river water, out of eleven fishes, nine died within ten minutes. The other two lived.

This experiment was repeated several times with similar results; more than two thirds failing to resist the sudden change of temperature.

I am unable to tell whether those used in the experiments were *Gambusia puncticulata*, *Glaridichthys falcatus*, *Girardinus metallicus* or *Pacilia vittata*, but probably they were mostly the latter genus and species, as this form was most abundant in the Chapapote spring.

While living in the hotel during a heavy storm the Analla River overflowed, sending a branch across this Chapapote spring. The following day we pumped out the water, finding a great many viviparous fishes, probably all of the four determined small species and a number of *viajecos*, *Heros tetraanthus*. Evidently they had all become acclimated to the hot water during the time of this overflow.

Besides the species mentioned, the collection contains two species which were not found in the warm spring, *Gambusia punctata* Poey, of which two were obtained from the Rio Analla and several from a tributary of the Zaza, and